

**MEMORANDUM FOR:**

Two variants of unclassified comparison of Soviet Union and the US in the "top twenty technologies." Released annually by the DDR&E. Based on intell community inputs.

There is an important message here: the Soviets do not seem to be able to compete with the US in the ability to support a program to develop a space-based BMD. It takes more than just directed energy and power sources to make a weapon system. It is particularly significant that the Soviets are in such arrears in the computer and sensors arenas...

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UNCLASSIFIED

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**WHO IS WINNING THE TECH RACE?**

This chart, adapted from a Defense Department report, shows relative U.S. and Soviet standing in 20 areas of technology chosen by the Pentagon as a valid base for comparing overall U.S. and Soviet technological standing. These technologies are all "on the shelf" and available for application, but the list is not intended to compare technology levels in currently deployed military systems.

The arrows indicate that the relative technology level is changing in the direction indicated—either toward greater equality between the United States and the Soviet Union or, in one case, toward greater U.S. superiority in the field.

The report cautions that these comparisons depict overall average standing only, not relative standing in subcategories of a given technology.

Basic Technologies	U.S. Superior	U.S./U.S.S.R. Equal	U.S.S.R. Superior
Aerodynamics/Fluid Dynamics		●	
Computers and Software	←●		
Conventional Warheads (including all chemical explosives)		●	
Directed Energy (laser)		●	
Electro-Optical Sensor (including Infrared)	●		
Guidance and Navigation	●		
Life Sciences (human factors/biotechnology)	●		
Materials (lightweight, high strength/temperature)	●→		
Micro-Electronic Materials and Integrated Circuit Manufacturing	●		
Nuclear Warheads		●	
Optics		●	
Power Sources (mobile; includes energy storage)		●	
Production/Manufacturing (includes automated control)	●		
Propulsion (aerospace and ground vehicles)	●→		
Radar Sensor	●→		
Robotics and Machine Intelligence	●		
Signal Processing	●		
Signature Reduction	●		
Submarine Detection	●→		
Telecommunications (includes fiber optics)	●		

SOURCE: THE FY 1987 DEPARTMENT OF DEFENSE PROGRAM FOR RESEARCH AND DEVELOPMENT

important  
for SDI -  
type  
technologies

# TECHNOLOGY COMPARISONS TOP TWENTY TECHNOLOGIES

## UNITED STATES LEADS

## EQUALS

## SOVIET UNION LEADS

- |                       |                         |
|-----------------------|-------------------------|
| 0 COMPUTERS/SOFTWARE  | 0 DIRECTED ENERGY       |
| 0 SIGNAL PROCESSING   | 0 POWER SOURCES         |
| 0 RADAR SENSORS       | 0 FLUID DYNAMICS        |
| 0 E-O SENSORS         | 0 CONVENTIONAL WARHEADS |
| 0 GUIDANCE/NAVIGATION | 0 NUCLEAR WARHEADS      |
| 0 STEALTH             |                         |
| 0 OPTICS              |                         |
| 0 MICRO-ELECTRONICS   |                         |
| 0 TELECOMMUNICATIONS  |                         |
| 0 SUBMARINE DETECTION |                         |
| 0 PROPULSION          |                         |
| 0 MATERIALS           |                         |
| 0 ROBOTICS            |                         |
| 0 LIFE SCIENCES       |                         |
| 0 PRODUCTION          |                         |

YES, THEY ARE  
GOOD IN DE  
TECHNOLOGIES

BUT

THE SOVIETS  
DON'T HAVE THE  
OVERALL LEAD  
IN ANY AREA.

IMPORTANT  
IF THE  
SOVS  
WANTED  
AN "SDI"  
OF  
THEIR  
OWN

DECLASSIFIED